

CLAIMS

What is claimed is:

1. A joint compound sanding device comprising:
 - a hand held housing;
 - a bottom plate including:
 - a plurality of dust collection apertures extending through the bottom plate between a vacuum manifold and a bottom surface of the bottom plate;
 - a plurality of dust collection channels formed in the bottom surface defining mesas there between, the mesas for supporting the porous joint compound sanding screen; and
 - a dust collection fan with a fan inlet joined to the vacuum manifold;
 - a motor coupled to the hand held housing with a rotating shaft coupled to the dust collection fan for rotating the dust collection fan such that air is drawn through a porous joint compound sanding screen, through the channels, through the dust collection apertures into the vacuum manifold and through the fan inlet and expelling the air into an exhaust manifold;
2. The joint compound sanding device of claim 1, further comprising means for moving the bottom plate with respect to the housing in a linear motion.
3. The joint compound sanding device of claim 1, wherein the vacuum manifold is defined by the bottom plate, a top surface and side walls extending around the periphery of the bottom plate, and wherein the top surface includes a central aperture there-through and joined with the fan inlet whereby air that is drawn through the porous joint compound sanding screen is drawn through the channels, through the dust collection apertures into the vacuum manifold and through the central aperture to the fan inlet.

1 4. The joint compound sanding device of claim 3, further comprising means for
2 moving the bottom plate with respect to the housing in a linear motion.
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1 5. The joint compound sanding device of claim 3, wherein the bottom plate, the top
2 surface, and the side walls form a base; and the joint compound sanding device further
3 comprises means for moving the base with respect to the housing in a linear motion.
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1 6. The joint compound sanding device of claim 5, wherein the means for moving the
2 base with respect to the housing comprises:

3 at least one track extending in a longitudinal direction for coupling to a
4 matting track of the housing and permitting motion of the base with respect to the
5 housing in the longitudinal direction while restricting motion of the base with respect to
6 the housing in a lateral direction;

7 a lateral slot;

8 the joint compound sanding device further comprises an idler spinning in a plane
9 parallel to the base and comprising an off axis drive lug engaged in the lateral slot; and

10 the motor further rotates the idler thereby causing the base oscillate with respect
11 to the housing in the longitudinal direction.
12

1 7. The joint compound sanding device of claim 6, wherein the base further
2 comprises a mounting for supporting an extension, the extension comprising an
3 abrasive surface generally planar to the bottom surface of the base when supported by
4 the mounting.
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1 8. The joint compound sanding device of claim 7, wherein the mounting comprising:
2 a tube for engaging a pin secured to the extension; and
3 means for securing the pin within the tube.
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1 9. The joint compound sanding device of claim 8, wherein:
2 the pin extending into the tube a distance at least half of the width of the base in

3 a lateral direction and includes an engagement slot; and
4 the means for securing the pin within the tube comprises an engagement plate
5 positioned in the center of the base in the lateral direction for engaging the engagement
6 slot.

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1 10. A joint compound sanding device comprising:

2 a hand held housing comprising a vacuum port for coupling the joint compound
3 sanding device to an external suction source;

4 a bottom plate including:

5 a plurality of dust collection apertures extending through the bottom plate
6 between a vacuum manifold and a bottom surface of the bottom plate;

7 a plurality of dust collection channels formed in the bottom surface
8 defining mesas there between, the mesas for supporting the porous joint compound
9 sanding screen; and

10 a manifold coupling the vacuum manifold to the vacuum port such that air is
11 drawn through a porous joint compound sanding screen, through the channels, through
12 the dust collection apertures into the vacuum manifold and through the manifold and
13 vacuum port by the external suction source.

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1 11. The joint compound sanding device of claim 10, further comprising means for
2 moving the bottom plate with respect to the housing in a linear motion.

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1 12. The joint compound sanding device of claim 11, wherein the vacuum manifold is
2 defined by the bottom plate, a top surface and side walls extending around the
3 periphery of the bottom plate, and wherein the top surface includes a central aperture
4 there-through and joined with manifold whereby air that is drawn through the porous
5 joint compound sanding screen is drawn through the channels, through the dust
6 collection apertures into the vacuum manifold and through the central aperture to the
7 manifold.

1 13. The joint compound sanding device of claim 12, wherein:
2 the bottom plate, the top surface, and the side walls form a base; and
3 the means for moving the bottom plate with respect to the housing comprises
4 means for moving the base with respect to the housing in a linear motion.
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1 14. The joint compound sanding device of claim 12, wherein the means for moving
2 the base with respect to the housing comprises:

3 at least one track extending in a longitudinal direction for coupling to a
4 matting track of the housing and permitting motion of the base with respect to the
5 housing in the longitudinal direction while restricting motion of the base with respect to
6 the housing in a lateral direction;

7 a lateral slot;

8 the joint compound sanding device further comprises a motor rotating an idler
9 spinning in a plane parallel to the base and comprising an off axis drive lug engaged in
10 the lateral slot thereby causing the base to oscillate with respect to the housing in the
11 longitudinal direction.
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1 15. The joint compound sanding device of claim 14, wherein the base further
2 comprises a mounting for supporting an extension, the extension comprising an
3 abrasive surface generally planar to the bottom surface of the base when supported by
4 the mounting.
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1 16. The joint compound sanding device of claim 15, wherein the mounting
2 comprising:

3 a tube for engaging a pin secured to the extension; and
4 means for securing the pin within the tube.
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1 17. The joint compound sanding device of claim 6, wherein:
2 the pin extending into the tube a distance at least half of the width of the base in
3 a lateral direction and includes an engagement slot; and

the means for securing the pin within the tube comprises an engagement plate positioned in the center of the base in the lateral direction for engaging the engagement slot.

18. A method of sanding hardened joint compound, the method comprising:

securing a porous joint compound sanding screen to a bottom plate, the bottom plate comprising:

a plurality of dust collection apertures extending through the bottom plate between the vacuum manifold and a bottom surface of the bottom plate;

a plurality of dust collection channels formed in the bottom surface defining mesas there between, the mesas for supporting a porous joint compound sanding screen; and

moving the bottom plate in a linear motion with respect to a hand held housing to create linear sanding action; and

forming a vacuum within a vacuum manifold above the bottom plate to draw air and dust through the porous joint compound sanding screen, through the channels, through the dust collection apertures into the vacuum manifold.

19. The method of claim 18, wherein the vacuum manifold is defined by the bottom plate, a top surface and side walls extending around the periphery of the bottom plate, and wherein the top surface includes a central aperture there-through and joined with a fan inlet whereby a fan performs the step of drawing the air and dust through the porous joint compound sanding screen, through the channels, through the dust collection apertures into the vacuum manifold.

20. The method of claim 19, wherein the bottom plate, the top surface, and the side walls form a base; and the step of moving the bottom plate in a linear motion with respect to a hand held housing comprises moving the base with respect to the housing in a linear motion.